Models of the Universe -- Spring 2003

Talking points for class on 12 April 2003

1. In science there are things called models, theories, and laws.
   a) What is your understanding of what are models, theories, and laws? What are the differences between them? (Remember your answer because we will revisit the question toward the end of the course.)
   b) Apply your definitions to things in science you might know about or have heard about, such as evolution, the Ptolemaic picture of the solar system, continental drift, quantum mechanics, relativity. Why do you think some things are called theories and others called laws or models? Is there a value judgment here? Are laws better than models, etc?
   c) Even more challenging, how might your definitions in a) be useful outside of science, say in politics, economics, sociology, or dating?
   d) Do you think there is a progression in science, say model $\rightarrow$ theory $\rightarrow$ law?

2. Johannes Kepler was not a happy camper. He had a miserable life, obviously tormented by inner demons, a hypochondriac, obsessive, compulsive, and repulsive. But there is hope for him. Miraculously, one of Dr. Copernicus's prescriptions can cure him and make him "normal." Just one tablespoon of donkey urine once a week will make him happy, well adjusted, and ***normal***. The only side effect is the taste (it tastes like…well you know what it tastes like). As Kepler's friend, do you advise the poor creature to take the magic medicine and become perfectly normal? Sick puppy or normal? Tortured genius or normal? It's your call. Please think about the cost/benefit of Kepler becoming normal and write a one-page recommendation addressed to him.